

AD, and these hypometabolic areas are well correlated with the cognitive impairments of PCA and typical AD.

**P2-104** **IMAGE INTERPRETATION METHOD OF [C-11]BF-227 AMYLOID PET IN J-ADNI**

Nobuyuki Okamura<sup>1</sup>, Takashi Kato<sup>2</sup>, Ken Fujiwara<sup>3</sup>, Kengo Ito<sup>4</sup>, Michio Senda<sup>5</sup>, Ryoza Kuwano<sup>6</sup>, Kenji Ishii<sup>7</sup>, Kazunari Ishii<sup>8</sup>, Takeshi Iwatsubo<sup>9</sup> The Japanese Alzheimer's Disease Neuroimaging Initiative<sup>10</sup>, <sup>1</sup>Tohoku University School of Medicine, Sendai, Japan; <sup>2</sup>National Center for Geriatrics and Gerontology, J-ADNI PET Core, Obu, Aichi, Japan; <sup>3</sup>NCGG, J-ADNI PET Core, Obu, Japan; <sup>4</sup>National Center for Geriatrics and Gerontology, J-ADNI PET Core, Obu, Japan; <sup>5</sup>J-ADNI PET Core, Kobe, Japan; <sup>6</sup>Niigata University, J-ADNI Biomarker Core, Niigata, Japan; <sup>7</sup>Tokyo Metropolitan Geriatric Hospital, J-ADNI PET Core, Tokyo, Japan; <sup>8</sup>Kinki University, J-ADNI PET Core, Osakasayama, Japan; <sup>9</sup>The University of Tokyo, J-ADNI, Tokyo, Japan; <sup>10</sup>J-ADNI, Tokyo, Japan. Contact e-mail: tkato@ncgg.go.jp

**Background:** Image interpretation of [C-11]BF-227 amyloid PET is not easy because of its low contrast between positive and negative accumulation. The purpose of this study was to propose and validate a method for visual interpretation of BF-227 PET. **Methods:** Subjects were 10 normal subjects (NL), nine patients with mild cognitive impairment (MCI), and 12 patients with Alzheimer's disease (AD) who underwent BF-227 PET in Tohoku University and National Center for Geriatrics and Gerontology according to the J-ADNI protocol. BF-227 PET image of 20-40 min after injection was spatially normalized using BF-227 template and SPM. SUVR (standard uptake value ratio) image was calculated with the cerebellar reference value which was obtained with combination of common cerebellar region of interest on the standard brain and gray-white cutoff value on each individual BF-227 image. SUVR image smoothed with Gaussian kernel filter (8 mm in FWHM) was displayed with rainbow color scale. The images were visually interpreted by two interpreters who were blinded to the clinical category and the results of CSF biomarkers. The images were designated as positive or negative scan by whether substantial intensity and extent of radioactive signal was observed or not mainly in the inferior temporal lobes. The values of CSF biomarkers were rescaled to signed Z scores in the normal population in J-ADNI. **Results:** Positive scan rate by the visual interpretation of NL, MCI, and AL were 0%, 29%, and 100%, respectively. The averaged Z score (+/-S.D. and significant level of the difference) of CSF Ab1-42, pTau, and pTau/Ab1-42 ratio of the positive/negative scan group were -1.44(+/-0.13)/0.64(+/-1.15) (p=0.00026), 3.77(+/-1.16)/0.36(+/-1.66) (p=0.0023), and 3.56 (+/-0.86)/-0.07(+/-1.44) (p=0.00020), respectively. One case of NL represented conflicting results of negative scan and positive CSF biomarkers. The mean SUVR value in the inferior temporal lobes and the precuneus were higher in the positive scan group (1.15+/-0.02) than in the negative scan group (1.05+/-0.04) (p<0.000001). **Conclusions:** The visual evaluation of positive/negative scan of BF-227 PET was consistent with the results of CSF biomarkers and SUVR values. The proposed interpretation method for BF-227 PET is considered to be appropriate.

**P2-105** **COGNITIVE RESERVE BENEFITS BRAIN EFFICIENCY IN HEALTHY AGING**

Jose Antonio Cabranes<sup>1</sup>, Ricardo Bajo<sup>2</sup>, Sara Aurtenekez<sup>3</sup>, Maria Eugenia Garcia<sup>3</sup>, Pilar Garcés<sup>2</sup>, Pablo Cuesta<sup>2</sup>, Nazareth Castellanos<sup>2</sup>, Ana Barabash<sup>1</sup>, Pedro Montejo<sup>4</sup>, Raquel Yubero<sup>1</sup>, Marisa Delgado<sup>5</sup>, Alberto Marcos<sup>6</sup>, Fernando Maestú<sup>2</sup>, <sup>1</sup>Hospital Clínico San Carlos, Madrid, Spain; <sup>2</sup>Center for Biomedical Technology, Pozuelo de Alarcon, Spain; <sup>3</sup>Center for Biomedical Technology (CTB), Pozuelo de Alarcon, Spain; <sup>4</sup>Memory Decline Prevention Center of Madrid, Madrid, Spain; <sup>5</sup>Seniors Center of the District of Chamartin, Madrid, Spain; <sup>6</sup>Hospital Clínico San Carlos, Madrid, Spain. Contact e-mail: jcabranes.hcsc@salud.madrid.org

**Background:** The concept of cognitive reserve (CR) describes the mind's resistance to the progressive damage of the brain and probably this can be

reflected as the ability to recruit brain networks in an effective way. It is associated with the ability to cope with the deleterious effects of brain damage, brain degeneration, or age-related changes on cognitive performance. Thus, CR has been revealed to contribute to achieve a successful aging. Educational level and occupational attainment have been established as the main proxies of CR because they have been the ones which better protect against cognitive decline and thus, have been the most utilized ones in cognitive reserve research. Functional brain connectivity refers to the statistical interdependencies between physiological time series simultaneously recorded in different brain areas. The brain efficiency could be quantified using functional connectivity measurements (synchronization values) while a cognitive task. A more efficient network will show less synchronization values in order to produce a similar performance. The study of brain efficiency through connectivity measures seems an essential tool for cognitive aging research. **OBJECTIVES** The main objectives were to 1) study how CR modulates cognitive performance in healthy aging, and 2) assess the effect of CR in the profiles and efficiency of functional brain networks. **Methods:** For our purpose we recruited 22 healthy old subjects, divided in two subgroups based on their cognitive reserve index (CRI = educational level + occupational attainment). Cognitive, physical and social activity scores were not significantly different between groups. MEG signals were recorded during the execution of a memory task. Brain connectivity of the ongoing MEG signals were calculated under phase locking value (PLV) algorithm. **Results:** Under the same performance, high-CR participants showed lower connectivity values between anterior and posterior located sensors, comparing with low-CR participants. **Conclusions:** Due to the 'protection' that the CR provides, it seems that ageing effects are reduced because of the brain network operates more efficiently. It could be said that the brain network in high-CR participants, seems to be better prepared to face ageing deterioration.

**P2-106** **CARDIOVASCULAR RISK FACTORS IN TRANSIENT GLOBAL AMNESIA: A CASE CONTROL STUDY FROM 293 PARTICIPANTS**

Jae-Won Jang<sup>1</sup>, Young Ho Park<sup>2</sup>, Jung E. Kim<sup>3</sup>, SangYun Kim<sup>4</sup>, <sup>1</sup>Seoul National University Bundang Hospital, Sungnam, South Korea; <sup>2</sup>Department of Neurology, Seoul National University Bundang Hospital, Seongnam-si, Gyeonggi-do, South Korea; <sup>3</sup>Clinical Neuroscience Center, Seoul National University Bundang Hospital, Seoul, South Korea; <sup>4</sup>Seoul National Univ. Bundang Hospital, Seongnam-si, South Korea. Contact e-mail: light26@hanmail.net

**Background:** The pathophysiology of transient global amnesia (TGA) is not fully understood. Present study was conducted to identify the vascular risk factors of TGA compared with those of TIA and normal controls with large number of subjects. In addition to it, association between the observed vascular risk factors in current study and pathophysiologic mechanism recently investigated were speculated. **Methods:** We performed retrospective case-control study compared 293 TGA patients with 632 TIA patients and 293 normal controls matched for age and sex. Vascular risk factors and findings from SPECT imaging analysis using voxel-based morphometry were recorded. **Results:** Present study revealed that TGA cases had a significant higher prevalence of ischemic heart disease and hyperlipidemia although lower prevalence of hypertension, DM, previous ischemic stroke and atrial fibrillation compared to TIA patients. TGA patients also showed significantly higher prevalence of hyperlipidemia, previous ischemic stroke and ischemic heart disease compared with age-sex-matched

